```
      (FILE 'HOME' ENTERED AT 11:57:32 ON 10 JUN 2004)

      FILE 'INSPEC, COMPENDEX, JICST-EPLUS, PASCAL' ENTERED AT 11:59:16 ON 10
      JUN 2004
L1       2037640 S FAIL? OR FAULT? OR ERR OR ERROR? OR DEFECT?
L2         35457 S PRINTER?
L3         58996 S UPGRAD? OR UP()GRAD?
L4       3026495 S  SENSE? OR DETECT? OR IDENTI?
L5           135 S L1(3N)L2
L6             0 S L5 AND L3
L7           262 S L1(6N)L2
L8             1 S L7 AND L3
L9          4356 S (ERR OR ERROR) AND PRINT?
L10       119776 S (ERR OR ERROR) AND L4
L11           84 S (ERR OR ERROR) AND L5
L12            0 S L11 AND PRINT?  AND L3
L13            3 S L10 AND PRINT?  AND L3
L14            2 DUP REM L13 (1 DUPLICATE REMOVED)
L15           29 S L2(3N)L3
L16            0 S L15 AND L1
L17           68 S L2(10N)L3
L18            0 S L17 AND L1
L19           14 S L1 AND L2 AND L3
L20           13 DUP REM L19 (1 DUPLICATE REMOVED)
L21           10 S L2()L1
L22            8 DUP REMOVE L21 (2 DUPLICATES REMOVED)

=>
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L24 ANSWER 1 OF 1 JICST-EPlus COPYRIGHT 2004 JST on STN
AN 950421711 JICST-EPlus
TI Fault statistic analysis management system "Suguru-kun."For quick and easy analysis, statistics and management of failure cases.
AU TOYOKUNI HIROYUKI
CS Nippon Telegr. and Teleph. Corp.
SO NTT Gijutsu Janaru, (1995) vol. 7, no. 5, pp. 92. Journal Code: F0050B (Fig. 1)
ISSN: 0915-2318
CY Japan
DT Journal; Miscellaneous
LA Japanese
STA New
AB Statistics management of existing new test desk system needed preparation of documents such as fault management data totaled by hands to carry out tendency analysis of the failure content per unit.To improve this method, a system for quick and easy analysis, statistics and management of failures has been developed that is connected to the new test desk system through a **printer** branch device and **downloads** customer **failure** data to automatically collect and classify them.

=>

L22 ANSWER 8 OF 8 INSPEC (C) 2004 IEE on STN
AN 1971:228245 INSPEC DN C71005167
TI Buffer technique for **printer error** recovery.
AU Frassetto, H.E.
SO IBM Technical Disclosure Bulletin (July 1970) vol.13, no.2, p.413-14
CODEN: IBMTAA ISSN: 0018-8689
DT Journal
CY United States
LA English
AB This redundant checking system for printers provides backup buffers for each of the three buffer areas, Print Line Buffer, the Universal Character Buffer, and the Forms Control Buffer, to prevent the occurrence of unrecoverable errors which require operator intervention in the form of reloading of the buffer in error.

```
Set     Items   Description
S1     404344   PRINTER?
S2     198261   UPGRAD? OR UP()GRAD?
S3    5107634   FAIL? OR FAULT? OR ERR OR ERROR? OR DEFECT? OR FLAW?
S4    6341567   MESSAGE? OR INFORMATION? OR INFO? ? OR ALERT?
S5   23709902   MEASUR? OR CALCULAT? OR DETERMIN? OR SENS? OR ASSESS?
S6   15359958   CORRECT? OR ALTER????? OR ADJUST????? OR IMPROV????? OR MO-
             DIF???? OR REGULAT???? OR ELIMINAT???? OR MINIMIZ?
S7       1958   S1(3N)S3
S8      60209   S3(3N)S4
S9         76   S6 AND S7 AND S8
S10         8   S9 AND S2
S11         8   RD (unique items)
S12       827   S1 AND S2 AND S3
S13       437   S1(6N)S2
S14        48   S13 AND S3
S15        46   S14 AND PY<=2002
S16        34   RD (unique items)
S17        34   S16 NOT S11
S18      1064   S1(3N)(ERR OR ERROR?)
S19        14   S18 AND S2
S20        12   RD (unique items)
S21         5   S20 NOT (S11 OR S17)
?  show files
File   2:INSPEC 1969-2004/May W5
         (c) 2004 Institution of Electrical Engineers
File   6:NTIS 1964-2004/Jun W1
         (c) 2004 NTIS, Intl Cpyrght All Rights Res
File   8:Ei Compendex(R) 1970-2004/May W5
         (c) 2004 Elsevier Eng.  Info. Inc.
File  34:SciSearch(R) Cited Ref Sci 1990-2004/May W5
         (c) 2004 Inst for Sci Info
File 434:SciSearch(R) Cited Ref Sci 1974-1989/Dec
         (c) 1998 Inst for Sci Info
File  99:Wilson Appl. Sci & Tech Abs 1983-2004/May
         (c) 2004 The HW Wilson Co.
File  94:JICST-EPlus 1985-2004/May W3
         (c)2004 Japan Science and Tech Corp(JST)
File  92:IHS Intl.Stds.& Specs. 1999/Nov
         (c) 1999 Information Handling Services
File 144:Pascal 1973-2004/May W5
         (c) 2004 INIST/CNRS
File 202:Info. Sci. & Tech. Abs. 1966-2004/May 14
         (c) 2004 EBSCO Publishing
File 647:CMP  Computer Fulltext 1988-2004/May W5
         (c) 2004 CMP Media, LLC
File 696:DIALOG Telecom. Newsletters 1995-2004/Jun 09
         (c) 2004 The Dialog Corp.
File  35:Dissertation Abs Online 1861-2004/May
         (c) 2004 ProQuest Info&Learning
File  65:Inside Conferences 1993-2004/Jun W1
         (c) 2004 BLDSC all rts. reserv.
File 103:Energy SciTec 1974-2004/May B2
         (c) 2004 Contains copyrighted material
File 350:Derwent WPIX 1963-2004/UD,UM &UP=200435
         (c) 2004  Thomson Derwent
File 347:JAPIO Nov 1976-2004/Feb(Updated 040607)
         (c) 2004 JPO & JAPIO
File 239:Mathsci 1940-2004/Jul
         (c) 2004 American Mathematical Society
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File  95:TEME-Technology & Management 1989-2004/May W4
         (c) 2004 FIZ TECHNIK
File  25:Weldasearch 19662004/Dec
         (c) 2004 TWI Ltd
File  62:SPIN(R) 1975-2004/Apr W3
         (c) 2004 American Institute of Physics
File  96:FLUIDEX 1972-2004/May
         (c) 2004 Elsevier Science Ltd.
File  98:General Sci Abs/Full-Text 1984-2004/Jun
         (c) 2004 The HW Wilson Co.
File 266:FEDRIP 2004/Apr
         Comp & dist by NTIS, Intl Copyright All Rights Res
?
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11/9/7 (Item 1 from file: 350)
DIALOG(R)File 350:Derwent WPIX

016169772 **Image available**
WPI Acc No: 2004-327659/200430
Related WPI Acc No: 2004-031550
XRPX Acc No: N04-261379
Upgrade **suggesting system for printer such as laser printer, selects printer** upgrades **stored in memory of external computer in response to transmitted printing** error message
Patent Assignee: PARRY T J (PARR-I)
Inventor: PARRY T J
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 20040057767	A1	20040325	US 200279664	A	20020220	200430 B
			US 2003669117	A	20030923	

Priority Applications (No Type Date): US 200279664 A 20020220; US 2003669117 A 20030923
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 20040057767	A1		9	B41J-003/42	Div ex application US 200279664 Div ex patent US 6652169

Abstract (Basic): US 20040057767 A1
NOVELTY - A generator generates an **error message** related to **error** occurred during printing functions, and transmits **error message** to an external computer through network. The printer **upgrades** having printer conditions stored in memory of external computer, is selected in response to the transmitted **error message** .
USE - For **correcting errors** occurred in **printers** such as laser printer, impact printer, photographic printer and inkjet printer used in home and business computing environments.
ADVANTAGE - The number of errors occur during the printing function can be reduced efficiently.
DESCRIPTION OF DRAWING(S) - The figure shows the block diagram of the **upgrade** suggesting system.
printer (10)
web server (12)
microprocessor (20)
RAM (21)
mechanical components of printer (28)
pp; 9 DwgNo 1/3
Title Terms: **UPGRADING** ; SYSTEM; PRINT; LASER; PRINT; SELECT; PRINT; **UPGRADING** ; STORAGE; MEMORY; EXTERNAL; COMPUTER; RESPOND; TRANSMIT; PRINT ; ERROR; MESSAGE
Derwent Class: T01; T04
International Patent Class (Main): B41J-003/42
File Segment: EPI
Manual Codes (EPI/S-X): T01-N01A2A; T01-N01D; T04-G10

11/9/8 (Item 2 from file: 350)
DIALOG(R)File 350:Derwent WPIX

015873719 **Image available**

WPI Acc No: 2004-031550/200403
Related WPI Acc No: 2004-327659
XRPX Acc No: N04-024885
Printer upgrade **suggestion method e.g. for laser printer, involves transmitting message representing availability of printer** upgrade **corresponding to printing** error , **to** printer
Patent Assignee: PARRY T J (PARR-I); HEWLETT-PACKARD DEV CO LP (HEWP)
Inventor: PARRY T J
Number of Countries: 001 Number of Patents: 002
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 20030156874	A1	20030821	US 200279664	A	20020220	200403 B
US 6652169	B2	20031125	US 200279664	A	20020220	200403

Priority Applications (No Type Date): US 200279664 A 20020220
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 20030156874	A1		11	B41J-003/42	
US 6652169	B2			B41J-003/42	

Abstract (Basic): US 20030156874 A1

NOVELTY - The printing **error** of a **printer** (10), is detected by an error detector (23), and transmitted to an external computer through network interface (16). The printer **upgrade** corresponding to received **error message** , is determined and the message representing availability of **upgrade** is transmitted to the printer by the computer.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for printer **upgrade** suggestion system.

USE - For suggesting **upgrade** of printer e.g. laser printer, inkjet printer, impact printer, photographic printer.

ADVANTAGE - **Improves** the productivity, efficiency and reliability of the printer without the need for any user input.

DESCRIPTION OF DRAWING(S) - The figure shows the block diagram of the printer.

printer (10)
network interface(22) memory (16)
error detector (23)
mechanical components of printer (28)
pp; 11 DwgNo 1/3

Title Terms: PRINT; **UPGRADING** ; METHOD; LASER; PRINT; TRANSMIT; MESSAGE; REPRESENT; AVAILABLE; PRINT; **UPGRADING** ; CORRESPOND; PRINT; ERROR; PRINT
Derwent Class: P75; T01; T04
International Patent Class (Main): B41J-003/42
International Patent Class (Additional): B41J-005/30; B41J-011/44; G06K-015/00
File Segment: EPI; EngPI
Manual Codes (EPI/S-X): T01-F05B2; T01-G03; T01-G08; T01-N02B; T04-G10E
?

01157339 CMP ACCESSION NUMBER: WIN19980401S0092

Fast Laser Printing Spoken Here (Hardware)

Joel T. Patz

WINDOWS MAGAZINE, **1998** , n 904, PG160
PUBLICATION DATE: 980401
JOURNAL CODE: WIN LANGUAGE: English
RECORD TYPE: Fulltext
SECTION HEADING: Reviews
WORD COUNT: 601

TEXT:

There's nothing like a laser printer for high-quality, high-speed monochrome output. Two recent entries, the HP LaserJet 4000TN and the Lexmark Optra S 1620, prove manufacturers haven't forgotten that quality black-and-white output can still be affordable.

In our tests, the LaserJet 4000TN was marginally faster than the Optra S 1620, but its superior graphics resolution produced a much finer level of detail.

Both **printers** offer **upgrade** options, such as a duplexer and additional paper trays. For heavier media, both accommodate straight-through printing. A drop-down front panel reveals a multipurpose feeder tray, useful for feeding envelopes or heavier stock.

Though the LaserJet 4000TN came with built-in Ethernet networking, we tested the printers in standalone mode using Windows 95 drivers.

HP LaserJet 4000TN

The LaserJet 4000TN's default FastRes 1200 setting produces output at 14.8 pages per minute (near its rated speed of up to 17ppm), while the ProRes 1200 (best quality) setting operates at about half that. The 600-dot-per-inch setting is fine for text. Our 20-page text-only document started printing before the entire job finished spooling. Thanks to the printer's Instant-On Fuser, there's virtually no warm-up time.

Using the Adobe PostScript level 2 emulation, however, changed our standard 20-page document's length to 18 pages. The Optra S 1620 made no such adjustment.

The 4000TN's driver offers a quick-set function for defining and saving custom print-job configurations, though there's very little to change: landscape/portrait, paper size, input tray and so on. You can toggle the 4000TN's REt (Resolution Enhancement Technology)-it's on by default. An LCD display provides status information and serves as the on-printer menu for adjusting settings such as special paper sizes.

Our LaserJet 4000TN came with two 250-sheet paper trays for versatility (the basic LaserJet 4000, at $1,099, has a 500-sheet tray), an additional 4MB of memory and a built-in HP JetDirect 600N printer server for network connections.

Lexmark Optra S 1620

The Optra S 1620, the first high-performance laser printer at under $1,000, fell slightly short of its rated 16ppm at 600x600, producing 14.3ppm in our tests; letters were well-formed, and the output was darker than that of the LaserJet 4000TN. At 1200x1200dpi text print quality was equally good. Crisp graphics detail was visibly weaker than the LaserJet 4000TN's. Even with fine dithering turned on, results were less acceptable.

The front-loading tray holds 350 sheets of paper up to 8.5 by 14 inches.

The Optra S 1620 also has a small LCD display and buttons to control the printer's menu. The Optra allows more control over settings than the LaserJet. You can, for example, control contrast and dithering. The 1620's Print Quality Enhancement Technology (PQET) setting is similar to

the HP's REt.

Lexmark's MarkVision printer utility software provides printer controls and status monitoring. For example, real-time alerts on demand (such as low paper) let you receive **error** or status messages to avoid problems.

The network-version Optra S 1620n adds built-in 10/100BaseT connectivity.

Output tells the tale

Even though the Lexmark Optra S 1620 offers options for greater total paper capacity, the HP LaserJet 4000TN's excellent overall output quality puts it on our WinList of recommended products.

-Quick View-

HP LaserJet 4000TN

Bottom Line: Excellent text and graphics output

Price: $1,599

Platforms: 3x, 95, NT

Pros: Speed and quality

Cons: Limited printer driver adjustments

Strongest Rival: Lexmark Optra S 1620

Hewlett-Packard Co., 800-LASERJET, 208-396-6000. Winfo #668

-

Lexmark Optra S 1620

Bottom Line: Good quality; expandability options

Price: $999

Platforms: 3x, 95, NT

Pros: Text quality

Cons: Graphics output lacks fine detail

Strongest Rival: HP LaserJet 4000TN

Lexmark International, 800-LEXMARK, 606-232-2000. Winfo #789

COMPANY NAMES (DIALOG GENERATED): Bottom Line ; Hewlett Packard Co ; Lexmark International ; Print Quality Enhancement Technology ; Resolution Enhancement Technology

17/9/11 (Item 11 from file: 647)

DIALOG(R)File 647:CMP Computer Fulltext

01096975 CMP ACCESSION NUMBER: CRW19960715S0001

One-Stop Shopping: A Hands-On Approach

COMPUTER RETAIL WEEK, **1996** , n 640, PGSB01

PUBLICATION DATE: 960715

JOURNAL CODE: CRW LANGUAGE: English

RECORD TYPE: Fulltext

SECTION HEADING: Small Business

WORD COUNT: 3378

TEXT:

Retailers have been selling office equipment to small businesses for years. However, it has only been in the past year that retailers have begun catering to this clientele with a wider range of professional products and services.

Small businesses are no longer simply picking up a word processor, a fax machine or some copy paper at the local office superstore. Today, they are just as likely to be having a local retailer deliver and install a network printer or coordinate a software training program for a new productivity application.

The arrival of computers in the retail market has transformed the channel into a magnet for small businesses seeking convenient access to the goods and services they need to run their operations. And retailers seeking to broaden their customer base and smooth out the peaks and

valleys of the consumer-oriented side of their businesses have rolled out a growing variety of programs to make small businesses feel right at home.

The retail channel was the source of 36.5 percent of all desktop PCs purchased by small businesses in the past 12 months, according to a just-completed survey of about 600 small businesses conducted by San Jose-based research and consulting firm, Dataquest. Those same organizations indicated they intend to make 29.9 percent of future PC purchases at retail as well.

According to Dataquest senior analyst Van Baker, small- business consumers are seeking convenience and low cost at retail. As a result, he believes that small businesses tend to underestimate their future purchases in the channel, many of which may be unplanned.

While small businesses seeking retail convenience are liable to shop wherever it is most convenient and least expensive-regardless of the channel-certain retail channels have captured the lion's share of small-business sales.

According to an IDC/Link survey of small businesses, the smaller the business, the more likely it is to shop in retail channels. IDC/ Link defines a small business as having fewer than 100 employees.

"As businesses grow, their needs become customized," said senior analyst Deepinder Sahni of IDC/Link, New York. "Larger businesses tend to have local area networks that are typically installed by VARs. Computer specialty stores are a good source for more than 30 percent of small businesses."

But Sahni noted that computer superstores accounted for about 11 percent of the most recent PC purchases reported by small businesses surveyed by IDC/Link in 1995; consumer electronics stores accounted for 6 percent; warehouse or membership clubs, 4.5 percent; office- products superstores, 4.3 percent; and discount chains, 2.2 percent.

While the IDC/Link report shows a wide variety of retail channels participating in the small-business market, the company's analysis indicates that larger organizations are seeking higher levels of customer service than they can find at retail.

"Computer superstores have also started selling direct to larger small businesses and other larger accounts," the report said. " However, these stores are not set up to provide the level of service desired by larger companies."

This is rapidly changing, though, as retailers begin to field larger telemarketing operations for both sales and support, outbound sales forces and direct-mail operations. The goal for these organizations is a target market that is expected to grow from 7 million small businesses in 1996 to 7.7 million small businesses in 2000, according to IDC/Link.

Within that small-business population, the penetration of notebook and multimedia computers is still fairly low, according to Sahni, and therein lies a substantial sales opportunity.

"We know that small-business market penetration of desktop computers is almost 75 percent. Given that level, it won't jump much, " said Sahni. "But we expect multimedia PCs and notebook PCs to grab a larger percentage of that market as these businesses replace their existing equipment."

Sahni also sees opportunity in the **upgrading** of dot matrix **printers** to color inkjet and lasers, and, five years from now, to color lasers. Local area networks are a critical area, he said, that has come to play a larger role at retail.

"The problem was that you always needed a technical person in the office, and that was an inhibitor," he said. "But they are trying to make some of the new products coming out as plug and play as possible , and are coming in at aggressive price points and with VAR support in the retail channel. Some of the new players entering the retail market are offering a combined router and hub for less than $1,000. That will give a bigger boost to network adoption than we thought."

Sahni said vendors are facilitating the shift to retail with greater support of retail sales efforts, including help with customer support and coordinating the installation of ISDN lines for retail customers. He said Internet access providers such as UUnet and Netcom are providing services that enable a small business to create home pages and facilitate sales on the World Wide Web.

"There's a lot of push from these vendors to get small businesses on the Web," he said.

With regard to actual hardware spending, Sahni said that the larger the business, the more it spends each year on hardware. While the average small business spends about $8,000 annually on equipment, those operations with between 55 and 99 employees spend closer to $20,000 each year.

Retailers in the office superstore, computer superstore and warehouse club channels have all sought various ways to address the small-business clientele.

Computer superstores such as Elek-Tek have introduced catalogs directed at small businesses. CompUSA and Computer City SuperCenters continue to move up the value-add scale with local area network installation and support, with some sources indicating that CompUSA is beginning to move into the area of systems integration.

"CompUSA has seven regional locations with full outsource capability to be able to go out and install a network," said one supplier to the chain who requested anonymity.

CompUSA's program is described internally as "total systems support," offering everything from hardware maintenance, configuration and installation services, to network integration and design and systems certification. But the company is not alone. About one dozen retailers on Computer Retail Week's Top 100 list offer network installation and support. That number will grow as the office superstores expand their corporate sales efforts into the office automation area.

While Staples is currently focused on expanding and developing its Contract and Commercial division targeted at medium-sized and corporate customers, Office Depot has put its emphasis on its UpTime Services. OfficeMax, meanwhile, is still testing the waters with regard to a small-business-oriented sales program. Office Depot is already offering network hardware in its stores. Staples will begin selling network hardware in August. And OfficeMax's MaxAssurance encompasses all of the services described here and even offers " customized services," including network installation, training, support and maintenance for Novell 3.11 and 4.0, Windows for Workgroups and Artisoft's LANtastic.

"Office Depot has the jump," according to one supplier. "No one else is aggressively going after it. Office Depot regionally with UpTime will have an internal network person that can do layout and also can actually go out to the customer site and set up the network. They should be able to arrange for outside help if necessary. In most major metro areas, they will have two stores with service and outsourcing."

But office superstores are attracting small-business customers throughout their stores while layering on services to increase the sense of convenience. From leasing and business credit cards, to delivery, installation and training, all of these retailers are wrapping their arms around the small-business market.

The warehouse clubs remain an off-the-shelf participant in the small-business phenomenon, particularly where network products are concerned.

While Sam's Club offers a variety of business credit options and a program for faxing in orders, the chain still has an ad hoc, market-by-market approach to delivering purchases or providing training. PriceCostco has had its Tech Centers for several years now in some of its warehouses, but the only edge it has on Sam's appears to be its delivery program. PriceCostco currently offers a bundled solution with two network

cards, a small hub and some twisted-pair cable at $599. "That should cost no more than $200," said one supplier.

Warehouse clubs attempted to sell networks to their business customers about six years ago through AT&T Paradyne, but the effort never got off the ground. Suppliers expect the clubs to make another run at selling networks sometime soon, particularly as products become easier to use and support.

Elsewhere in the retail channel, consumer electronics retailers have had a hit-and-miss experience with the small-business market. Best Buy launched an outbound sales test two years ago, only to shut it down six months later. Sears rolled out its Office Center departments approximately five years ago, but discovered that its customers weren't interested.

"You're trying to serve two masters," said Chuck Cebuhar, vice president and general manager for home electronics and home office at Sears. "We need to focus on our core business. You can only be so much to a consumer. Whatever (small-business sales) we get is by accident. We focus on the family."

Retailers such as Montgomery Ward, Circuit City Stores and other TV /appliance chains have chosen to follow Sears' lead and focus on consumers as well, which may explain why these channels are preferred by fewer small businesses than the other superstore retailers.

In a survey of 469 "end users" of information technology conducted by Dataquest late in 1995, 25.6 percent chose computer superstores as one of their top two third-party suppliers, the second-highest percentage. Office-products stores came in fifth place with 9.8 percent.

In general, suppliers said that anywhere between 50 percent and 70 percent of their retail customers are derived from small businesses. "About 70 percent of our customers at retail are small businesses," said Donella Cecrle, marketing manager for Linksys, Irvine, Calif., a network hardware supplier active in the retail channel. "The rest are larger business and corporate users."

"If we look at our registration cards, about 50 percent are consumers, 43 percent are small and medium-sized businesses, and 7 percent are Fortune 500," said Mark Simons, vice president of channel sales for Toshiba America Information Systems, Torrance, Calif. "If I threw mail order in on that, the percentages would be a lot higher.

"Our products are geared to the SoHo (small-office/home- office) market," Simons added. "Reaching these people through retail is a convenience factor, and that is the way they want to shop. There's no question that networking is a key function for what you do with this box-for connecting to the Internet, a company server or whatever."

According to Simons, the retailers that he deals with have already become solutions sellers pursuing sales-force automation projects, information access from remote sites and inventory management applications. "With any one of those applications, systems integration is a big piece," he said.

"We have had pretty good luck with computer superstores and have more recently been expanding into the office-products superstores," said Tom Miller, vice president of sales and marketing operations for Texas Instruments' notebook division. "Certainly from the office- products superstores, we have the feeling that they are reaching the small-business customer. That is certainly the demographic that they report back. We do some level of market research on the customer, and we feel we get a good sampling of small-business users in that channel."

While the office superstores appear to be the up-and-coming channel of distribution, computer superstores remain dominant. When suppliers are asked who the leaders in systems integration are in the retail channel, the same three names emerge: Comp-USA, Elek-Tek and Micro Center. While other chains are putting the systems, sales teams and technicians in place, these three chains are the only ones universally recognized as

leaders in the higher end of the small- business market.

But that is changing by the month as more suppliers recognize the market opportunity and respond to the pleas from retailers to sell the products that their customers have been asking for.

"Retail has always been a very large part of our strategy on the desktop," said John Wilkinson, group manager for channel marketing at Lotus Development. "lt is now becoming a large part of our strategy on the Notes side. We are coming down market very rapidly due to advances in technology and lower price points. We're targeting both small and mid-tier business for Notes and SmartSuite."

Wilkinson said that Lotus had already been selling Notes client software at retail, but began selling Notes server software in stores two months ago. "There's really only a select group of retailers interested in selling Notes," he said. "The majority of the computer superstores and the office superstores are candidates."

What is amazing about the "discovery" of the small-business customer in the retail market is that companies such as Artisoft have been serving a retail local area network, small-business clientele for years, according to Dave Draper, retail account manager for Artisoft. "Our product has been mainly focused on small business," he said. "We had a monopoly on that."

To fend off the intensifying competition, Artisoft has enhanced its latest network operating system release with modem sharing, in addition to other features. The company is also simplifying the network purchase. "All the customer has to do is match the tags to assemble a network," Draper said. "The tags, whether they are alphabetically or color coded, will tell the customer what goes together."

Draper said that Artisoft is also pursuing an authorization program of training sales and service personnel on the Artisoft line. "We want people certified in LANtastic so that the help is there," he said. "We're definitely pushing our customer satisfaction piece to the retailer. We just started (the program). They have to know each different SKU, sales and technical side, installing, optimizing and making it run."

Draper said that 90 percent to 100 percent of Artisoft's overall sales come from small businesses with 100 employees or less, and 30 percent to 40 percent of sales come from the retail channel. "It's growing very rapidly."

Some retailers are doing most of their small-business selling over the phone. "Everything we do is by phone, e-mail, or in the store," said Don Gordon, vice president of marketing for Computer Discount Warehouse in Chicago. "We are reviewing options for providing customers with third-party service. But right now, if it can't be done at our location, we don't do it."

"We've been concentrating on this area for some time," he said. " The small-business market is as strong as it has ever been, but people have to deal with the fact that it's a very large, diverse market. You have to break the market down into segments so that it's more of a vertical market approach."

To be successful, he said, retailers need to form strategic alliances and associations, and cultivate staff personnel with expertise in product areas that apply to specific small-business categories, such as doctors or lawyers. He cautioned, though, that some third-party programs in which CDW participated in the past **failed** to live up to their stated goals. He suggested proceeding with caution, particularly since the reliability of different VARs as marketing partners can vary widely.

When it comes to networking, Gordon said customers are normally looking to do two things: share files and share printers. "Most people we deal with have some expertise," Gordon said. "Sometimes we deal with people just getting involved, but there's usually a VAR or someone involved."

Egghead chose to move out of the corporate market and into the small-business market this spring by selling its commercial, government and educational sales division to Software Spectrum. The company is now reaching out to small businesses via its stores, a new small-business catalog and the Internet.

"The Internet side of the business appears to be almost exactly parallel to our retail business," said Peter Grossman, vice president of merchandising and advertising for Egghead. "Our retail stores have always done a large portion of their business to businesses, particularly to entrepreneurs or people with offices in their homes. Now we're much more focused on small businesses."

"We've redesigned all the catalogs," said Kathy Kennedy, director of advertising for Egghead. "We've launched a catalog focused on the small-business market segment. We restructured our mail files and direction to increase the amount of prospecting that we do."

The retail channel is particularly ideal because it creates little channel conflict with the value-added reseller channel. "We are putting our hubs into both catalogs and the physical stores," said Patrick Lo, director of the NetGear network product line for Bay Networks in Santa Clara, Calif. "We are looking at retailers that are selling to more sophisticated users,"

"Retail customers know roughly what they want, and they are either the more astute pioneering type or they are setting up a small- business network with the help of a friend. So you have the do-it- yourselfer or you are getting people who have help."

Lo said most of the suppliers at retail are coming to the market providing mainstay technologies at lower price points. "In networking , the 10M-bps technology has been around for quite some time," he said. "Now suppliers are targeting lower price points and 100M-bps technologies."

According to Lo, channel conflict is minimized because VARs steer their business more toward small businesses with larger networks. " When you have more than 10 to 15 nodes in a client-server environment , then you are looking at some kind of network operating system, and that is where VARs can add a lot of value."

He said VARs are charging more based on services than on the hardware involved. "For the lower end of the spectrum, for five to 10 PCs, a lot of the more formal VARs would find it difficult to sustain that business. And most of these PC networks probably don't need a very robust system. A peer-to-peer solution would be fine," Lo said.

Targeting products, both for the channel of distribution and with the end user in mind, 3Com introduced a line of products in February that were compact and easy to use with built-in remote support.

"We designed some special things into it for small business, realizing that they don't have a dedicated IS (information systems) person," said Chuck Yort, director of new markets for network hardware provider 3Com, Santa Clara, Calif. "It's supportable remotely. We can program the hub to monitor the network and based on certain problems can dial out to the support line."

Yort said that the company also offers a "15-minute configuration guarantee" on its Impact IQ ISDN terminal adapter. "We have a toll- free configuration service that they can call up and it will help them secure their ISDN line with their local telephone company and help them go through the configuration process," he said.

According to Yort, 3Com's program is much more focused on retail than it was in the past.

"We are now much more aware of the retail channel as being an important channel to reach," he said. "We are building a sales force that actually caters to the retail channel. We did an experiment with a product called Network Starter Kit at CompUSA that was basically a hub, three adapter cards and cabling. That was our first retail-only product.

We ran that beginning in November and we plan to take it beyond CompUSA."

3Com does have some authorization requirements for its higher-end products, but most of its retail offerings can be sold straight off the shelf.

"There are certain requirements," Yort said. "We do have a certification for our higher-end routers and multi-protocol routers. But for the general products, there is no certification required for our hubs and stackable switches. We've done everything we can to design the support out of the product."

Yort said that there is some channel conflict with VARs, but he noted that they derive most of their revenue from service and support , not hardware, which accounts for the lion's share of the retail portion of the business.

"A small business buying (its) first network would need a lot of support from a VAR," Yort said. "But then when a new employee comes on and they are going to do an add-on, the VAR is not seen as critical. "

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